

LETTERS



Letters, unlike papers and technical notes, are for the rapid publications of both fact and opinion on technical subjects and are therefore not subject to the referee review process.

EXPLORATION IN APPLIED SCIENCE

Dear Sir,

In the October issue of *NUCLEAR APPLICATIONS* Edward Teller expressed concern for the position of the United States in applied science and made some worthwhile suggestions for improving education in this area and for attracting more capable young people to applied work.

I would like to suggest that some other actions are also needed to improve our performance in the applied fields. Overall government support for pure science is abundant. Workers in the various fields may naturally have differing views about the balance in the present support pattern, but the total amount indicates enthusiastic support for pure science. In the main, adequate support is also available for developing solutions to defined problems and for the building of prototypes. However, applied scientists working in government-supported laboratories often have great difficulty in obtaining support for exploring new ideas and concepts that do not happen to be applicable to the closely defined problems of projects already launched. The mission-oriented offices regard them as outside their scope, while the research-supporting offices look upon them as too applied. It is indeed significant that the two areas, mentioned by Dr. Teller, in which we retain substantial leadership were not ones in which the initiative was taken by the Federal Government.

Research and development administrators usually plead budgetary and jurisdictional difficulties in connection with the support of such work. In many cases, efforts of this sort are "bootlegged" under the coattails of a project. While this can lead to worthwhile results, it produces in many workers a feeling that they are, at best, being humored and, at worst, doing work which is not really wanted and is embarrassing to those who hold the purse strings. Such an atmosphere is not conducive to best efforts.

A small fraction of the money now being budgeted for pure science and for prototypical demonstrations would serve to provide all of the forthright and open support

needed for the exploration of new ideas in the applied areas. What is needed is: first, a recognition by research and development administrators that the problem exists and is a serious one; and, second, the assignment of specific responsibility to some office for the development of new ideas and concepts in the applied area. In this connection, it will have to be recognized that, if the office is doing its job right, a considerable fraction of the supported activities will be failures. In pure science it is seldom that any work can be labeled an outright failure since some "knowledge" is produced. In prototypical demonstrations, a preselection process keeps the percentage of failures down. Also, it appears, if the failure is big enough, it can be expected to provide side benefits in knowledge gained and thereby furnish some justification. But, the overt speculative investment of a few man years of scientific effort in what may ultimately turn out not to be a good idea seems almost impossible in the government research and development administrators' world. Some such speculative investments are required for the future healthy growth of applied science in the US.

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DILUTING STACK GAS

Dear Sir,

Brasher's letter (October *NUCLEAR APPLICATIONS*) and the article he refers to, "The Evaluation and Measurement of Reactor Safety Performance," by H. J. Larson and K. Stratton (June, *NUCLEAR APPLICATIONS*), both leave me somewhat puzzled. Presumably, the object of building a stack is to take advantage of dilution by atmospheric diffusion between the point of release (the top of the stack) and the point at which the stack effluent plume reaches ground level.

Since the atmosphere is an infinite reservoir with regard to the volume of air discharged by a stack, as Sutton's equation indicates, the parameter controlling ground concentrations is the amount released per unit time and not its concentration. Dilution prior to stack discharge is simply beside the point, and therefore, so is the argument for it in the original article and criticizing it in the letter.

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ABOUT OUR COVER

Dear Reader,

When we adopted our cover design, we intended from time to time to change each of the six pictures so that, although the cover would always be recognizable as that of **NUCLEAR APPLICATIONS**, it would gradually

change, providing some inherent interest and avoiding the monotony of an identical cover each time. To this end we would welcome glossy black-and-white pictures from you depicting one of the six general categories used.

The Editors

ERRATUM

Volume 1, Number 5, October 1965 "Fatigue and Burst Tests on Irradiated In-Pile Stainless-Steel Pressure Tubes" by L. A. Waldman and M. Dumas:

page 440 equation (1) should read

$$\frac{P_b}{\sigma'_u} = \frac{0.25}{n + 0.227} \left(\frac{e}{n}\right)^n \ln K$$